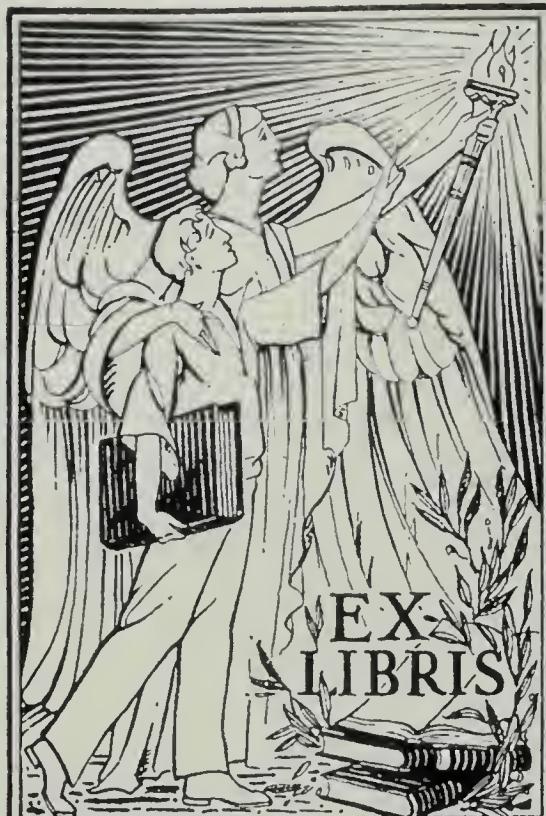


BORROWED EYES FOR THE BLIND

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HOUSE FOR THE BLIND

BORROWED EYES



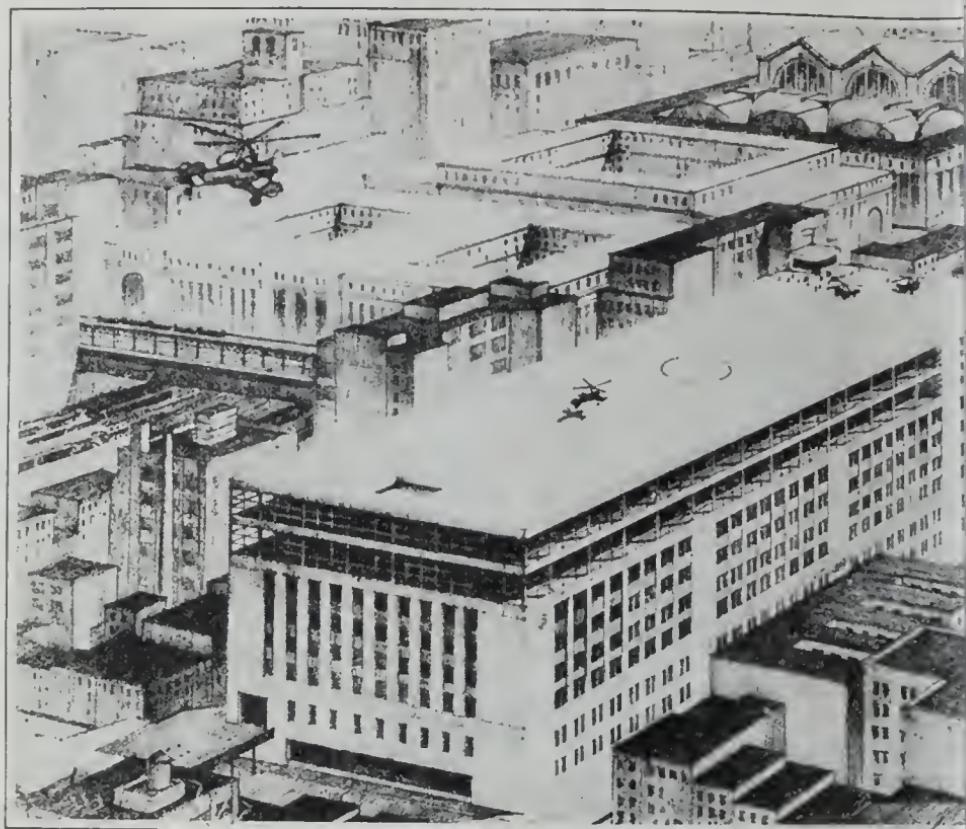
Top, Guide Dag Pulling Blind Master Away from Obstruction on Ground, and Teaching Dag to Watch for Overhead Obstruction Which Might Injure or Startle the Master; Center, in Negotiating Stairs, Dag Stays at Landing to Let Master Know It Is Battam ar Top; Belaw, Dag Is Taught to Bring Drapped Articles to Left Side so Master Knows Where ta Reach

IN an eastern city a man earns a living by house-to-house selling and servicing candy machines. This man is blind. Yet he walks eight or ten miles through city streets each day, crosses busy intersections, dodges automobiles and street cars, visits 300 or more strange homes, climbs innumerable stairs and encounters all the usual hazards of city travel.

No one could make such trips without the aid of sight. This blind man "sees" through the two alert and intelligent eyes of a German shepherd dog, one of the many "graduates" of "The Seeing Eye," a philanthropic institution at Morristown, N. J., where dogs are educated to act as guides for the blind.

This man has a mental picture of the streets he travels. He indicates to his four-footed companion the direction he wishes to go. She assumes all the responsibility of taking him safely to his destination and bringing him safely home. The man does not tap cautiously with a cane as he walks. His guide sets a rapid pace and the master walks confidently beside her, certain that she will warn him of any obstacle in his way.

Autogiro Port on Roof May Speed Air Mail



©W. Wallace Kellett

Architect's Drawing Shows How Roof of Post Office Building Could Be Rebuilt as Landing Platform for Autogiros Supplying Shuttle Service for Air Mail Between Newark Airport and Downtown New York

Conversion of the roof of the New York Parcel Post building into a landing platform for autogiros has been proposed with the purpose of speeding transportation of air mail between downtown New York and the Newark airport. Planes could cut the transit time from an hour to ten minutes. An architect's plan calls for a 200 by 750 foot surface to be built at an estimated cost of \$1,000,000. Similar projects have been suggested for other large cities.

FORESTS STORE SUN'S ENERGY FASTER THAN COAL IS USED

More energy is absorbed from the sun and stored away in American forests than is expended every year in coal mined. Dr. Hardy L. Shirley, of a forest experiment station at St. Paul, estimated that every acre of white pine in Wisconsin annually stores in wood, bark and leaves the equivalent of a ton of coal in solar energy. On

that basis forest lands of the country, 670 million acres, capture equal to 1,403 million tons of coal, one-half times the tonnage min-

LATHE SPEED CHANGED WITH HYDRAULIC CONTROL

Instantaneous change of speed, forward and reverse, is made possible on a lathe equipped with hydraulic controls. The lathe has sixteen forward and eight in reverse, controlled by a three-lever handle which can be turned without intermediate stop to the desired velocity. An automatic slide-rule indicates, just above the control, the spindle revolutions per minute and cutting speeds in feet per minute.



Mails

for the BLIND



Top, the Intelligent Head of a Typical Guide Dog and Dog Stopping at Curb Until Master Finds It with His Foot; Center, Harness by Means of Which the Dog and Master Communicate Information to Each Other; Below, the Guide Dog Leads Her Master through Heavy Traffic by Observing the General Direction of Movement of the Vehicles

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Top, Teaching Dog to Sit or Stand at Left of Master; Center, Future Guide Dogs at Play; Below, Indicating Bus Entrance

not trained, but educated to think for themselves.

The main difference between an amateur and a professional in teaching dogs is that the professional, through experience, is better able to "think like a dog." He understands animal psychology and dog intelligence and comes to know the dog's point of view—which often is quite differ-

ent from the man's. Thus he is better able to make the dog realize that a reward or a correction is a direct result of an act rather than an arbitrary action on the part of the teacher.

The animals selected for this work are nearly all German shepherds—which, incidentally, do not have "wolf blood" and which are not "police" dogs, as many believe. Females are used almost exclusively because they are less easily distracted. The guide dogs are carefully selected to obtain certain characteristics. They must be highly intelligent, they must have a sense of responsibility and

they must be gun-sure, because of back-firing in auto traffic.

Since they must not be distracted by inviting scents along the street, they are chosen for a lack of, rather than the possession of a sensitive nose. But they must have excellent eyesight and good hearing. One of these dogs can hear many times as well as a man and their eye sensitiveness to movement is amazing. Frequently a guide dog checks her master at the curb long before he can hear an approaching car. The dog not only hears the car, but detects the motion and gauges the speed.

Guide dogs start to school at fourteen months and their education requires three months. This is divided into three steps. First, each dog is taught obedience. She learns to fetch, to sit up, to lie down and to retrieve dropped articles by bringing

them to a certain position where the blind master will always know where to reach for them. She must learn not to chase other animals or chickens, so she is given an opportunity to try it. As she starts after a chicken, her name is called by the instructor and a light chain is flicked into the hind legs. The dog associates the chain with the chicken. She returns to her instructor and receives a caress instead of a reprimand. Then she wags her tail—and starts after another chicken. The chain lesson is repeated. Soon she learns a chicken means only discomfort.

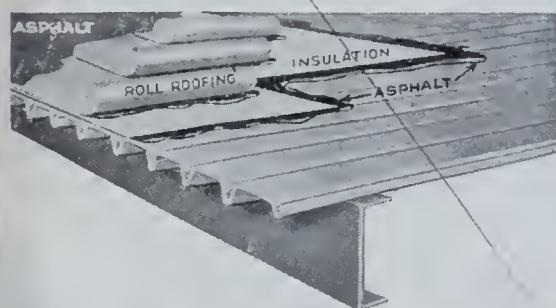
During the second period the dog acquires the rudiments of guiding. She is taught to stop at curbs until her instructor, feigning blindness, finds the edge with his foot or a cane. She learns the meaning of "forward," "right" and "left," the three commands her future master will use to direct her; she learns to lead her teacher around obstructions and to watch that his head does not strike anything. Then she goes into traffic and is taught to dodge pedestrians with her charge.

Because it is not definitely known whether dogs recognize colors and because motorists do not always obey them, the

(Continued to page 120A)

STEEL ROOF DECK IS FIRE-SAFE AND EASY TO INSTALL

Adaptable to all types of commercial buildings and modern residences, steel roof decking is available for constructing smooth roof surfaces. Fabricated from copper alloy or galvanized steel, the decking is lightweight and easy to install, in addition to being fire-safe. An unusual offset facilitates nesting of ribs. After insulation has been applied, composition roofing may be laid to complete the job.



Showing How Roofing Is Applied After Steel Decking Has Been Placed on Building

BOW AND ARROW FOR FISHING INTRODUCES NEW SPORT

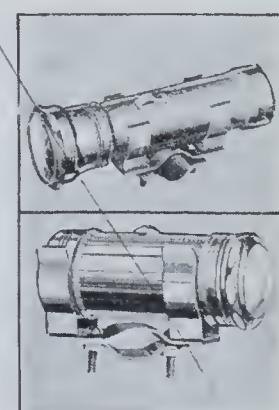


Shooting Fish in Clear Water; Bow Has Reel and Line to Which Arrow Is Attached

Use of the bow and arrow for shooting fish has been introduced in California, the latest in sport. A reel attached to the bow carries 150 yards of line. As the sportsman sights a fish in clear water, he quickly releases the arrow. If a strike is scored, the fisherman may manipulate the reel and bow to "play" the fish until it tires and can be brought to net.

BICYCLE LIGHT WITH CLAMP ALSO USED AS FLASHLAMP

Serving the double purpose of bicycle light and flashlight, a new two-cell spotlight with clamp is on the market. It may be removed for use as an ordinary flashlight. With this lamp is sold a red tail-light with clamp.



BILLIARDS -



By **WILLIE HOPPE**

1934 World's 18.1 Balk-Line and
Cushion Carom Billiards Champion

BILLIARDS is not a hard game to learn but if you aspire to become a really good player, you must first understand the three important fundamentals: the "bridge" hand on the table, how to grip the cue at the butt end, and stance, or position at the table. These three points are the principal elements governing the stroke. But you can learn these fundamentals at any age. A child may run up a high score, and a man taking up the game late in life may develop into an expert.

Let us take first the position of the hand on the table, or bridge. A bridge for ordinary shots can be built by forming a circle



Left, Hoppe Holds Butt Lightly between Two Fingers and Thumb; Right, in Using Substitute "Bridge," Grip at Butt Is Inverted; Eyes Are in Direct Line for Shot

with the thumb and first finger of your left hand, placing the tip of each together. Your middle finger should then be moved downward as far as possible toward the palm. Now slide the tip of your cue through this circle. It should pass over the top of the middle finger, touching it at, or a little above, the middle joint. Tighten

Borrowed Eyes for the Blind

(Continued from page 363)

guide dogs, at street intersections, learn to watch, not the lights, but the traffic itself. They are taught to stop at doors and elevators with noses pointing to the knob or button, to lead their charges through revolving doors and to stop at steps and curbs until ordered to proceed.

The most difficult and most important stage of instruction is the third, when the dog learns disobedience. In this stage, the dog must master the why of her work—she must understand that she is providing the eyes for a sightless man. The instructor gives an order which is obviously impossible. Perhaps he says "forward" when a truck is blocking the sidewalk. Gradually the dog learns that it is the spirit of the command, rather than the word, that is to be obeyed. Thus she comes to think first of the safety of her charge and will ignore an unsafe order or figure out a solution.

When she has mastered all the fine points of obedience, guiding and the proper time for disobedience, she is ready to demonstrate her ability in the blindfold test. Her instructor, blindfolded, takes her on the street and uses her exactly as her future master will. When she can guide her teacher along strange streets, through busy traffic, around puddles, icy bits of pavements, ladders and manholes, she is ready to be introduced to her owner.

But her master is not ready to receive his guide dog until he has undergone a course of training and instruction himself. He comes to the same school from which his dog has graduated and spends a month there with her, learning through practice and instruction how to direct his dog and follow her guidance. The man gradually acquires confidence in the ability of his guide and from the time he is introduced to his dog, the two are inseparable.

The guide dog communicates information to her master through a U-shaped, semi-rigid handle attached to her harness. Her pace is fast, and any slackening of gait is felt through the handle, held in the master's left hand. For a step or any obstacle the dog stops until her master locates it with his foot or cane. If he finds steps, he commands "forward" and she pauses at each one until his foot has found it. At a curb, regardless of the command, the dog

waits until traffic is moving in the direction she is to take before proceeding. For pedestrians, trees and puddles, she leans away from or toward her master and he follows the gentle pressure or pull.

Never has a "Seeing Eye" dog led a master into a serious accident. As a matter of fact, those who have watched one of the dogs leading her blind charge often have observed that the man apparently was in less danger of accident than if he could see. One reason for this is that the dog does not take the chances which a seeing person might. She does not try to beat a light, she does not jaywalk and she does not dash into cross traffic. But she does make good time, for her pace is faster than that of the average pedestrian.

Harsh methods of instruction never are used in teaching or correcting these guides. Such methods would instill fear, break the dog's confidence in herself and rob her of her sense of responsibility. "Phui" is the strongest term employed when a guide makes a mistake during training. She is praised and caressed for each correct act rather than blamed and scolded when she makes mistakes. Thus the greatest reward her blind master can bestow is a friendly pat and a word of praise for a task well done. Like most humans, the guide dog thrives on flattery.

The working life of one of these guides is about ten years, and to breed and train one such animal costs about \$1,000, but the blind master who acquires one of these educated guides is asked by the philanthropic institution which breeds them to pay only \$150 for the dog, the equipment, and the man's tuition, board and lodging during the four weeks of instruction. Many make these payments in small installments over a period of years.

Not all blind persons, of course, can use these guides. Some are too old, some are too young, and some do not like dogs. However, it is estimated that if the dogs could be provided, there are more than 10,000 sightless people in the United States today who would benefit by them. Just as Braille has freed these people in the mental world, these educated guide dogs have proved their ability to free the blind in the physical world.

Half an Acre and Independence

(Continued from page 393)

per year—a chicken for every Sunday.

You will need a yard about fifteen by thirty-seven and one-half feet for your goats and a yard of similar dimensions for the chickens, a total of 1,125 square feet. Suppose you provide an area seventy-five by fifty-seven feet for your house and yard, or 4,275 square feet. This makes a total of 20,415 square feet, less than half an acre, in a plot seventy-five by 275 feet.

Feed for your goats and chickens, in addition to vegetable tops and table scraps, will cost you about \$65 per year. Preparing and planting the garden will probably cost \$15, plus nine dollars for supervision.

The yearly food requirements remaining to be purchased for a liberal diet, according to government figures, are 100 pounds of flour and cereals per person, sixty pounds of sugar per person and 165 pounds of meat, poultry and fish per person, from which is subtracted the 125 pounds of meat from the chicken yard. Suppose flour averages four cents per pound, sugar five and one-quarter cents, and meat, poultry and fish sixteen cents.

Then your total yearly outlay for retail purchased food, aside from occasional incidentals, is \$147.75 for a family of five. Add to this the feed purchased for your goats and chickens and the cost of supervising and planting the garden, and the total is \$236.75, or \$47.35 per person per year—less than a dollar a week per person for food. If you include the original cost of the two goats and the chickens—about \$100—your total for the year is \$336.75.

Let's be liberal and allow a whole dollar per day for food for five—\$365 per year. What about the cost of your half acre? Prices vary with location. Since you live in a city now, you probably are employed in a city, so you must select a half acre near transportation to your work. That means a plot on the fringe of the city, probably near or outside city limits, possibly with some improvements available. Suppose we estimate the cost of your lot at \$300. Some locations will be higher, some considerably lower.

By taking advantage of new building materials and methods, you can erect on this lot a five-room, all-metal, well-insulated and thoroughly substantial home for

as little as \$1,750, including the cost of construction. On such a home you can obtain a loan from your bank or home loan company up to eighty per cent of the value of the house.

So if your lot costs \$300, you have opportunity to erect on it a modern five room house costing \$1,750, erected, for cash outlay of \$350, or twenty per cent of the value of the house. Your long-term loan can be liquidated like rent over a period of years, your small monthly payments totaling about \$200 per year.

Now, let's recapitulate. The first year is your big expense year. Your lot cost is estimated \$300, the down payment on your house is \$350, the first year's payments on your loan on the house represent about \$200, and your food bill is \$365—a total of \$1,215. After the first year, food and home payments—about \$565 per year—are your big items of expense. If you add to this taxes, depreciation and upkeep costs, your total expense after the first year should still be less than two dollars per day for food and home payments. And remember that part of this money is going to build up your equity in your home each year.

Is such a project feasible for the typical urban family with an income of \$1,062 per year? It is if the family really desires a home enough to save the small amount needed the first year to launch the venture. After the first year, this average income provides a margin of between \$30 and \$350 above the total amount of food bills and home payments.

Once the lot is purchased, the group itself can begin to pay for the house by reducing the food bills if it is made into a garden immediately. Thus the initial payment for the house can be augmented by the savings on food if the family income will not cover both the cost of the lot and the initial payment on the home.

As far as finding your half acre is concerned, just travel to the edge of your city and look around. A survey in the Chicago territory last year, for instance, revealed there are 254,000 arable acres within twenty miles of the downtown area. This represents more than half a million half acres enough to feed 2,500,000 people. The same is true of almost any other American city.

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BORROWED EYES FOR THE BLIND.



